

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) NEB-198-PCT

Box No. I TITLE OF INVENTION

ALTERATION OF RESTRICTION ENDONUCLEASE SPECIFICITY BY GENETIC SELECTION

Box No. II APPLICANT

 This person is also inventor

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

NEW ENGLAND BIOLABS, INC.

32 Tozer Road

Beverly, Massachusetts 01915

United States of America

Telephone No.

(978) 927-5054

Facsimile No.

(978) 927-1705

Teleprinter No.

Applicant's registration No. with the Office

State (that is, country) of nationality:

US

State (that is, country) of residence:

US

This person is applicant for the purposes of:

 all designated States all designated States except the United States of America the United States of America only the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

SAMUELSON, James C.
19 Garden Street
Apartment #202
Danvers, Massachusetts 01923
United States of America

This person is:

 applicant only applicant and inventor inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

US

State (that is, country) of residence:

US

This person is applicant for the purposes of:

 all designated States all designated States except the United States of America the United States of America only the States indicated in the Supplemental Box Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

 agent common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

STRIMPEL, Harriet M.
Patent Counsel
New England Biolabs, Inc.
32 Tozer Road
Beverly, Massachusetts 01915
United States of America

Telephone No.

(978) 927-5054 X: 373

Facsimile No.

(978) 927-1705

Teleprinter No.

Agent's registration No. with the Office
37008 Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

XU, Shuang-yong
15 Carol Lane
Lexington, Massachusetts 02420

This person is:

applicant only
 applicant and inventor
 inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:
CNState (that is, country) of residence:
USThis person is applicant
for the purposes of:

all designated
States all designated States except
the United States of America

the United States
of America-only

the States indicated in
the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

applicant only
 applicant and inventor
 inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant
for the purposes of:

all designated
States all designated States except
the United States of America

the United States
of America-only

the States indicated in
the Supplemental Box

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This person is:

applicant only
 applicant and inventor
 inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant
for the purposes of:

all designated
States all designated States except
the United States of America

the United States
of America-only

the States indicated in
the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

applicant only
 applicant and inventor
 inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant
for the purposes of:

all designated
States all designated States except
the United States of America

the United States
of America-only

the States indicated in
the Supplemental Box

Further applicants and/or (further) inventors are indicated on another continuation sheet.

Supplemental Box*If the Supplemental Box is not used, this sheet should not be included in the request.*

1. *If, in any of the Boxes, except Boxes Nos. VII(i) to (v) for which a special continuation box is provided, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No...." (indicate the number of the Box) and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:*
 - (i) *if more than two persons are to be indicated as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below:*
 - (ii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;*
 - (iii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;*
 - (iv) *if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;*
 - (v) *if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;*
 - (vi) *if, in Box No. VI, there are more than five earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI.*
2. *If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.*

CONTINUATION OF BOX IV

WILLIAMS, Gregory D.
 General Counsel
 New England Biolabs, Inc.
 32 Tozer Road
 Beverly, Massachusetts 01915
 United States of America

Box No. V DESIGNATION OF STATES *Mark the applicable check-boxes below; at least one must be marked.*

The following designations are hereby made under Rule 4.9(a):

Regional Patent

AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT *(if other kind of protection or treatment desired, specify on dotted line)*

EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT

EP European Patent: AT Austria, BE Belgium, BG Bulgaria, CH & LI Switzerland and Liechtenstein, CY Cyprus, CZ Czech Republic, DE Germany, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, SI Slovenia, SK Slovakia, TR Turkey, and any other State which is a Contracting State of the European Patent Convention and of the PCT

OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroun, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)*

National Patent (if other kind of protection or treatment desired, specify on dotted line):

<input checked="" type="checkbox"/> AE United Arab Emirates	<input checked="" type="checkbox"/> GM Gambia	<input checked="" type="checkbox"/> NZ New Zealand
<input checked="" type="checkbox"/> AG Antigua and Barbuda	<input checked="" type="checkbox"/> HR Croatia	<input checked="" type="checkbox"/> OM Oman
<input checked="" type="checkbox"/> AL Albania	<input checked="" type="checkbox"/> HU Hungary	<input checked="" type="checkbox"/> PH Philippines
<input checked="" type="checkbox"/> AM Armenia	<input checked="" type="checkbox"/> ID Indonesia	<input checked="" type="checkbox"/> PL Poland
<input checked="" type="checkbox"/> AT Austria	<input checked="" type="checkbox"/> IL Israel	<input checked="" type="checkbox"/> PT Portugal
<input checked="" type="checkbox"/> AU Australia	<input checked="" type="checkbox"/> IN India	<input checked="" type="checkbox"/> RO Romania
<input checked="" type="checkbox"/> AZ Azerbaijan	<input checked="" type="checkbox"/> IS Iceland	<input checked="" type="checkbox"/> RU Russian Federation
<input checked="" type="checkbox"/> BA Bosnia and Herzegovina	<input checked="" type="checkbox"/> JP Japan	
<input checked="" type="checkbox"/> BB Barbados	<input checked="" type="checkbox"/> KE Kenya	<input checked="" type="checkbox"/> SC Seychelles
<input checked="" type="checkbox"/> BG Bulgaria	<input checked="" type="checkbox"/> KG Kyrgyzstan	<input checked="" type="checkbox"/> SD Sudan
<input checked="" type="checkbox"/> BR Brazil	<input checked="" type="checkbox"/> KP Democratic People's Republic of Korea	<input checked="" type="checkbox"/> SE Sweden
<input checked="" type="checkbox"/> BY Belarus	<input checked="" type="checkbox"/> KR Republic of Korea	<input checked="" type="checkbox"/> SG Singapore
<input checked="" type="checkbox"/> BZ Belize	<input checked="" type="checkbox"/> KZ Kazakhstan	<input checked="" type="checkbox"/> SK Slovakia
<input checked="" type="checkbox"/> CA Canada	<input checked="" type="checkbox"/> LC Saint Lucia	<input checked="" type="checkbox"/> SL Sierra Leone
<input checked="" type="checkbox"/> CH & LI Switzerland and Liechtenstein	<input checked="" type="checkbox"/> LK Sri Lanka	<input checked="" type="checkbox"/> TJ Tajikistan
<input checked="" type="checkbox"/> CN China	<input checked="" type="checkbox"/> LR Liberia	<input checked="" type="checkbox"/> TM Turkmenistan
<input checked="" type="checkbox"/> CO Colombia	<input checked="" type="checkbox"/> LS Lesotho	<input checked="" type="checkbox"/> TN Tunisia
<input checked="" type="checkbox"/> CR Costa Rica	<input checked="" type="checkbox"/> LT Lithuania	<input checked="" type="checkbox"/> TR Turkey
<input checked="" type="checkbox"/> CU Cuba	<input checked="" type="checkbox"/> LU Luxembourg	<input checked="" type="checkbox"/> TT Trinidad and Tobago
<input checked="" type="checkbox"/> CZ Czech Republic	<input checked="" type="checkbox"/> LV Latvia	<input checked="" type="checkbox"/> TZ United Republic of Tanzania
<input checked="" type="checkbox"/> DE Germany	<input checked="" type="checkbox"/> MA Morocco	<input checked="" type="checkbox"/> UA Ukraine
<input checked="" type="checkbox"/> DK Denmark	<input checked="" type="checkbox"/> MD Republic of Moldova	<input checked="" type="checkbox"/> UG Uganda
<input checked="" type="checkbox"/> DM Dominica		<input checked="" type="checkbox"/> US United States of America
<input checked="" type="checkbox"/> DZ Algeria	<input checked="" type="checkbox"/> MG Madagascar	<input checked="" type="checkbox"/> UZ Uzbekistan
<input checked="" type="checkbox"/> EC Ecuador	<input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia	<input checked="" type="checkbox"/> VC Saint Vincent and the Grenadines
<input checked="" type="checkbox"/> EE Estonia	<input checked="" type="checkbox"/> MN Mongolia	<input checked="" type="checkbox"/> VN Viet Nam
<input checked="" type="checkbox"/> ES Spain	<input checked="" type="checkbox"/> MW Malawi	<input checked="" type="checkbox"/> YU Yugoslavia
<input checked="" type="checkbox"/> FI Finland	<input checked="" type="checkbox"/> MX Mexico	<input checked="" type="checkbox"/> ZA South Africa
<input checked="" type="checkbox"/> GB United Kingdom	<input checked="" type="checkbox"/> MZ Mozambique	<input checked="" type="checkbox"/> ZM Zambia
<input checked="" type="checkbox"/> GD Grenada	<input checked="" type="checkbox"/> NO Norway	<input checked="" type="checkbox"/> ZW Zimbabwe
<input checked="" type="checkbox"/> GE Georgia		
<input checked="" type="checkbox"/> GH Ghana		

Check-boxes below reserved for designating States which have become party to the PCT after issuance of this sheet:

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Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(e) other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)*

BEST AVAILABLE COPY

Sheet No. 5

Box No. VI PRIORITY CLAIM

The priority of the following earlier application(s) is hereby claimed:

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country or Member of WTO	regional application: * regional Office	international application: receiving Office
item (1) 10 January 2002 (10.01.2002)	60/347,403	US		
item (2)				
item (3)				
item (4)				
item (5)				

Further priority claims are indicated in the Supplemental Box.

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified above as:

all items item (1) item (2) item (3) item (4) item (5) other, see
Supplemental Box

* Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)):

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA / US

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year) Number Country (or regional Office)

Box No. VIII DECLARATIONS

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration):

Number of declarations

<input type="checkbox"/> Box No. VIII (i)	Declaration as to the identity of the inventor	:
<input type="checkbox"/> Box No. VIII (ii)	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	:
<input checked="" type="checkbox"/> Box No. VIII (iii)	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	1
<input type="checkbox"/> Box No. VIII (iv)	Declaration of inventorship (only for the purposes of the designation of the United States of America)	:
<input type="checkbox"/> Box No. VIII (v)	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	:

Box No. VIII (iii) DECLARATION: ENTITLEMENT TO CLAIM PRIORITY

The declaration must conform to the standardized wording provided for in Section 213; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (iii). If this Box is not used, this sheet should not be included in the request.

Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis.1(a)(iii)):

Declaration as to the Applicant's entitlement, as at the International Filing Date, to claim the priority of the earlier Application specified below, where the Applicant is not the Applicant who filed the Application (Rules 4.17(iii) and 51bis.1(a)(iii)):

in relation to this International Application, New England Biolabs, Inc. is entitled to claim priority of earlier Application No. 60/347,403 by virtue of the following:

- (i) New England Biolabs, Inc. is entitled as employer of inventors: James C. Samuelson and Shuang-yong Xu;
- (iii) an Assignment from James C. Samuelson and Shuang-yong Xu to New England Biolabs, Inc. dated 10 January 2002 and recorded with the United States Patent Office under Reel 012484/Frame No. 0298.
- (iii) this Declaration is made for the purposes of:
 - (a) all designations except the United States.



This declaration is continued on the following sheet, "Continuation of Box No. VIII (iii)".

PCT

FEES CALCULATION SHEET Annex to the Request

For receiving Office use only

International Application No.

Date stamp of the receiving Office

Applicant's or agent's
file reference NEB-198-PCT

Applicant NEW ENGLAND BIOLABS, INC.
SAMUELSON, James C. XU, Shuang-yong

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE 240.00 T
2. SEARCH FEE 450.00 S

International search to be carried out by US

(If two or more International Searching Authorities are competent to carry out the international search, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

Where item (b) of Box No. IX applies, enter Sub-total number of sheets } 55
Where item (b) of Box No. IX does not apply, enter Total number of sheets } _____

b1 first 30 sheets 407.00 b1

b2 25 x 9 = 225.00 b2
number of sheets in excess of 30 fee per sheet

b3 additional component (only if sequence listing part of description is filed in computer readable form under Section 801(a)(i), or both in that form and on paper, under Section 801(a)(ii)):
400 x _____ = b3
fee per sheet

Add amounts entered at b1, b2 and b3 and enter total at B 632.00 B

Designation Fees

The international application contains 94 designations.

5 x 88 = 440.00 D
number of designation fees amount of designation fee
payable (maximum 5)

Add amounts entered at B and D and enter total at I 1072.00 I

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

4. FEE FOR PRIORITY DOCUMENT (if applicable) 30.00 P

5. TOTAL FEES PAYABLE 1,792.00
Add amounts entered at T, S, I and P, and enter total in the TOTAL box TOTAL

The designation fees are not paid at this time.

MODE OF PAYMENT

authorization to charge
deposit account (see below) postal money order cash coupons
 cheque bank draft revenue stamps other (specify): _____

AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT ACCOUNT (This mode of payment may not be available at all receiving Offices)

Authorization to charge the total fees indicated above.
 (This check-box may be marked only if the conditions for deposit accounts of the receiving Office so permit) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.
 Authorization to charge the fee for priority document.

Receiving Office: RO/ US

Deposit Account No.: 14-0740

Date: Harriet Strimpel

Name: Harriet M. Strimpel, D.Phil.

Signature: _____

Box No. IX CHECK LIST; LANGUAGE OF FILING

This international application contains:

(a) the following number of sheets in paper form:
 request (including declaration sheets) : 7
 description (excluding sequence listing part) : 35
 claims : 1
 abstract : 1
 drawings : 8

Sub-total number of sheets : 52

sequence listing part of description (actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (b) below) : 3

Total number of sheets : 55

(b) sequence listing part of description filed in computer readable form

(i) only (under Section 801(a)(i))
 (ii) in addition to being filed in paper form (under Section 801(a)(ii))

Type and number of carriers (diskette, CD-ROM, CD-R or other) on which the sequence listing part is contained (additional copies to be indicated under item 9(ii), in right column): disk

This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item):

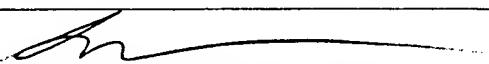
1. fee calculation sheet : 1
 2. original separate power of attorney :
 3. original general power of attorney :
 4. copy of general power of attorney; reference number, if any: :
 5. statement explaining lack of signature :
 6. priority document(s) identified in Box No. VI as item(s): :
 7. translation of international application into (language): :
 8. separate indications concerning deposited microorganism or other biological material :
 9. sequence listing in computer readable form (indicate also type and number of carriers (diskette, CD-ROM, CD-R or other))
 (i) copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application) :
 (ii) (only where check-box (b)(i) or (b)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter :
 (iii) together with relevant statement as to the identity of the copy or copies with the sequence listing part mentioned in left column : 4
 10. other (specify): check in the amount of \$ 1,792.00

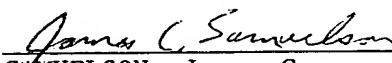
Figure of the drawings which should accompany the abstract:

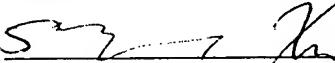
Language of filing of the international application: English

Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).


 NEW ENGLAND BIOLABS, INC.
 Applicant.
 Gregory D. Williams
 Secretary


 SAMUELSON, James C.
 Applicant/Inventor


 XU, Shuang-yong
 Applicant/Inventor

For receiving Office use only		
1. Date of actual receipt of the purported international application:		2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA /		
6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid		

For International Bureau use only

Date of receipt of the record copy by the International Bureau: